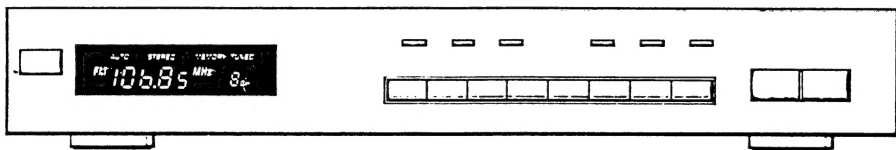


SERVICE
MANUAL

UT - 100

FM/AM SYNTHESIZER TUNER



U905

SPECIFICATION (MODEL UT-100)

FM Tuner Section

Frequency range 87.5 MHz to 108 MHz
Usable Sensitivity 11.2 dBf, IHF(1.0 μ V/75 Ω)
50 dB Quieting Sensitivity
..... Stereo ; 36.2dBf,IHF(17.8 μ V/75 Ω)
Signal-to-Noise Ratio Mono;76 dB(at 80 dBf)
..... Stereo;63 dB(at 80 dBf)
Distortion(at 80 dBf) Stereo, 0.2%(1 kHz)
Alternate Channel Selectivity 90 dB(400 kHz)
Stereo Separation 45 dB(1 kHz)
Frequency Response $\begin{matrix} +0.5 \\ -2.0 \end{matrix}$ (30 Hz to 15 kHz)

IAGE Response Ratio	85 dB
IF Response Ratio	90 dB
AM Suppression Ratio	60 dB
Antenna Input	75 Ω unbalanced

AM Tuner Section

Frequency range	522 kHz to 1611 kHz
Sensitivity(IHF, Loop antenna)	300 $\mu\text{V/m}$
Selectivity	22 dB
Signal-to-Noise Ratio	45 dB
IMAGE Response Ratio	40 dB
IF Response Ratio	50 dB
Antenna	Loop Antenna

Audio Section

Output Level	
FM(75 kHz DEV)	680mV/3.6 kΩ
AM(30% MOD)	150mV/3.6 kΩ

Miscellaneous

Power Requirements	AC 220 Volts 50 Hz
Power Consumption	9.5W
Dimensions	420(W)x60(H)x250(D) mm
Weight(with package)	4.5 Kg
(Without package)	2.7 Kg

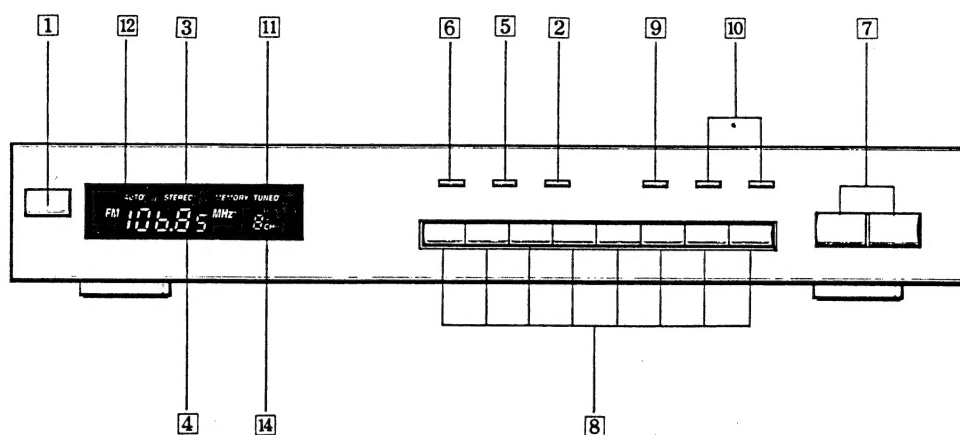
Furnished Parts

FM wire Antenna	1
AM Loop Antenna	1
Operating Instructions	1

NOTE:

Specification and design subject to possible modification without notice due to improvements.

FRONT PANEL FEATURES



1. POWER switch

When this switch is set to the on position, power is supplied to the tuner's main circuits.

2. AUTO / MANUAL button

Use this switch when changing the tuning method. When this selector is pressed so that the Auto indicator lights (12), the Auto mode will be activated.

3. FM STEREO indicator

This lights when a stereo program has been picked up during an FM broadcast.

4. FREQUENCY display

This shows the frequency of the station currently being received in digital form. The FM band is indicated by MHz, and the AM band by kHz.

5. FM MONO) use this button

6. FM MUTE

When the broadcast station is distant, when you are in a weak reception area, when the input signals are weak.

7. TUNING button

These are used to locate stations. Push the left half of this switch "Down" to locate a station broadcasting on a lower frequency and the right half of this switch "Up" to locate a station broadcasting on a higher frequency.

8. PRESET STATION button

These are used to preset and recall broadcasting stations.

9. MEMORY button

This is used to memorize stations. When the switch is depressed, the MEMORY indicator will light. To memorize the frequency of any station, press the STATION CALL switch while the MEMORY indicator is lighting up.

10. FUNCTION button

These are used to select either the FM, AM broadcasting bands.

FM : Push to receive FM band broadcasts.

AM : Push to receive AM band broadcasts.

11. TUNED indicator

This lights up to indicate when finest tuning of a station has been activated.

12. AUTO indicator

When this indicator is lighted so that the Auto mode will be activated.

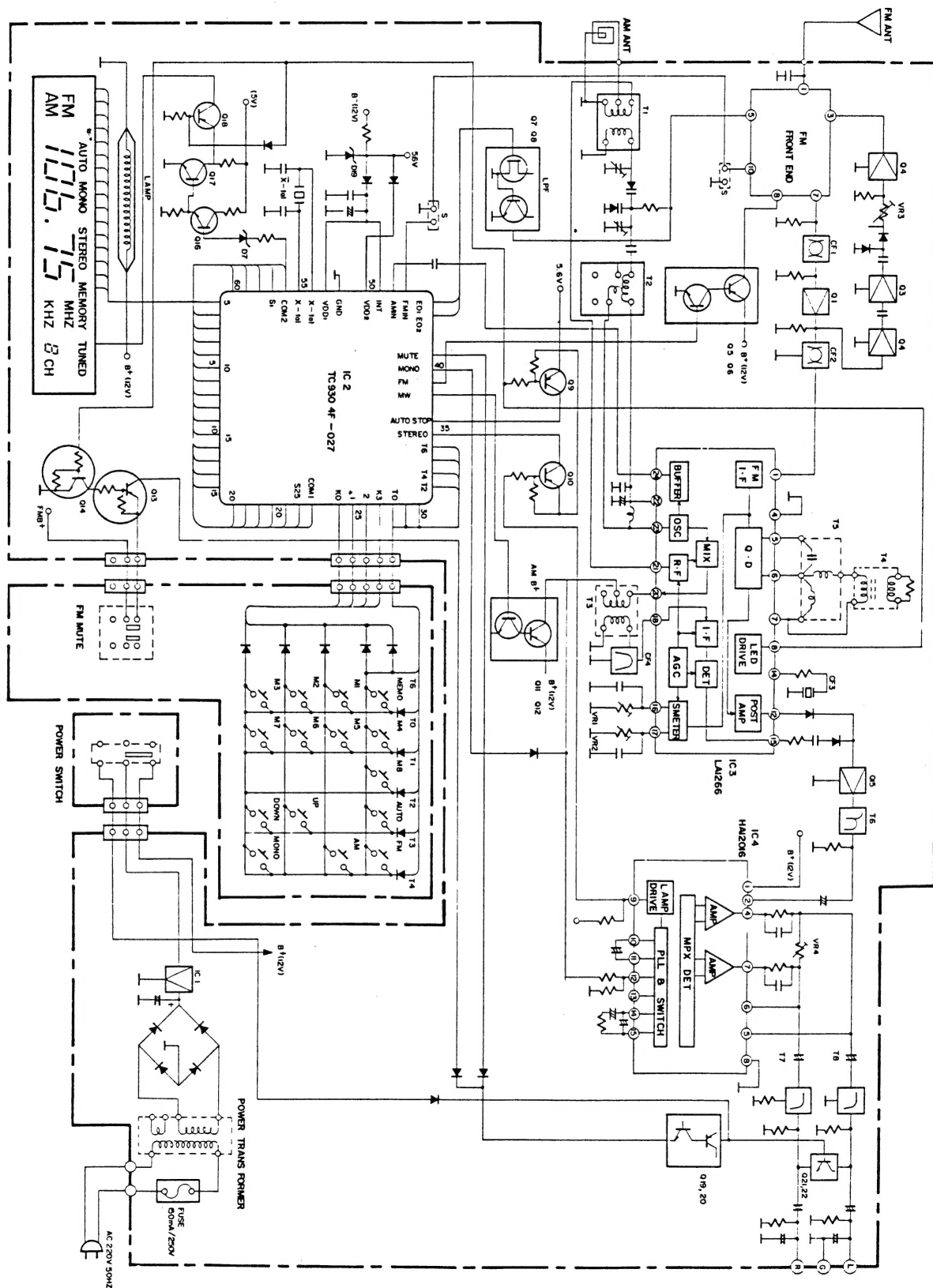
13. MONO indicator

When this indicator is lighted so that the MONO Mode will be activated.

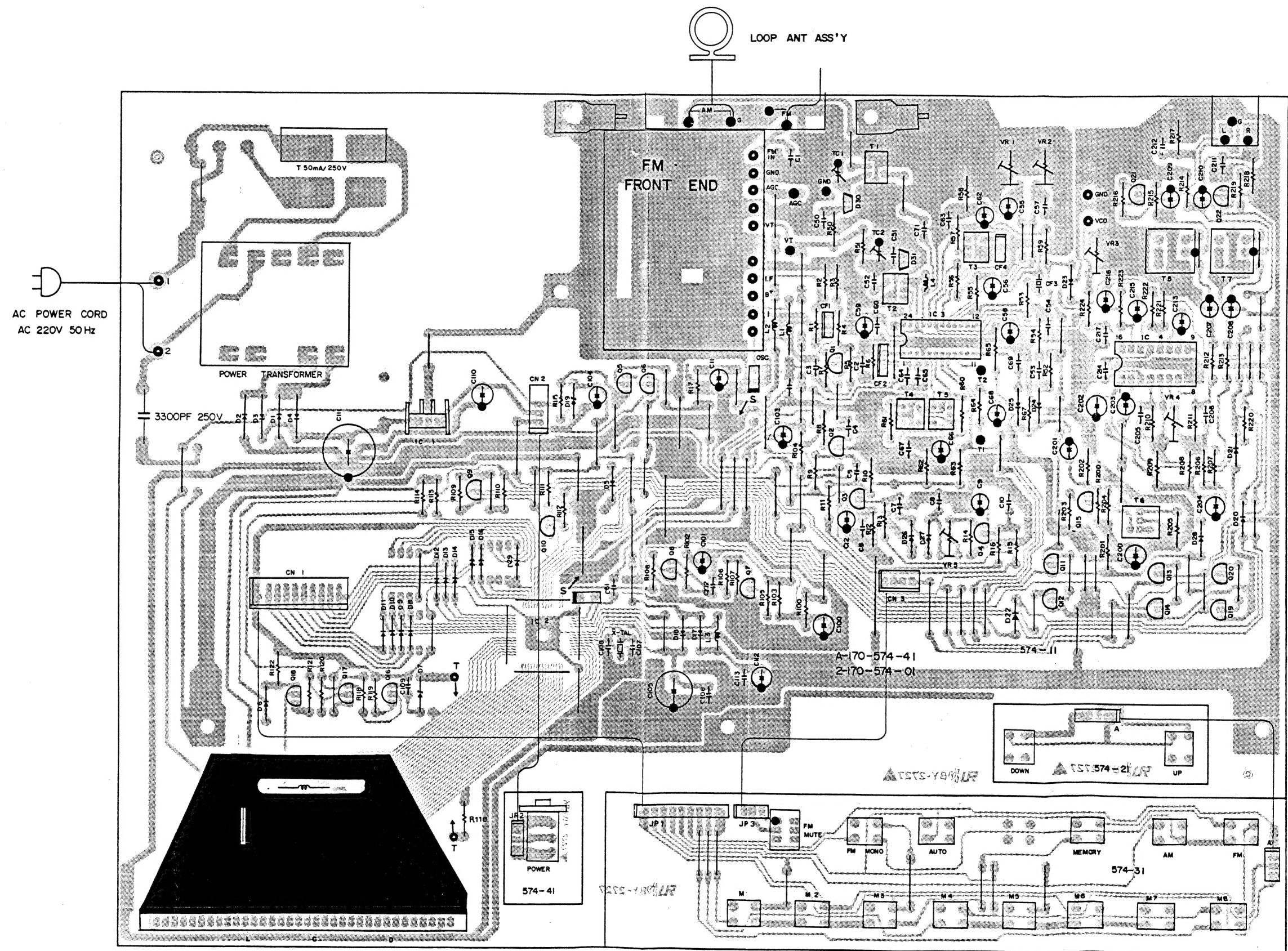
14. PRESET STATION indicator

These light (1 cH, 2 cH, ... 8 cH) when the preset station (M1, M2, ... M8) button is pressed

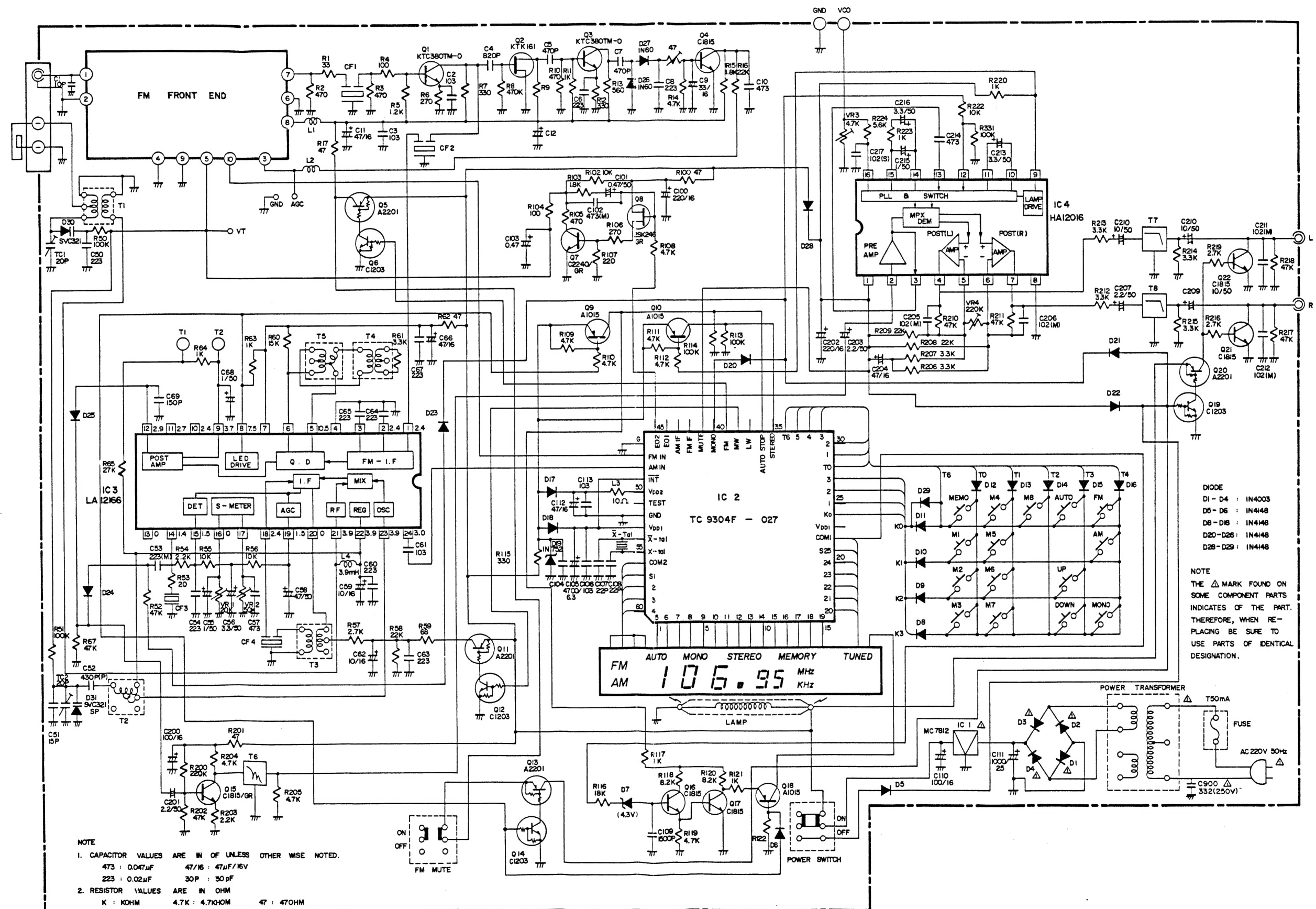
BLOCK DIAGRAM



WIRING DIAGRAM



SCHEMATIC DIAGRAM



ADJUSTMENT

FM Tuner section

- Connect the FM signal generator (FM SG) to the FM Antenna 75 ohm terminal through a 75 ohm dummy antenna.

- Set the UT-100 to the FM Band,

*1) Tune the FM SG to the UT-100

*2) Connect the FM Multiplex stereo signal generator to the FM SG external Modulation terminal. Set the modulation to Main 1KHz/L + R/± 40kHz deviation, pilot 19kHz/6kHz deviation.

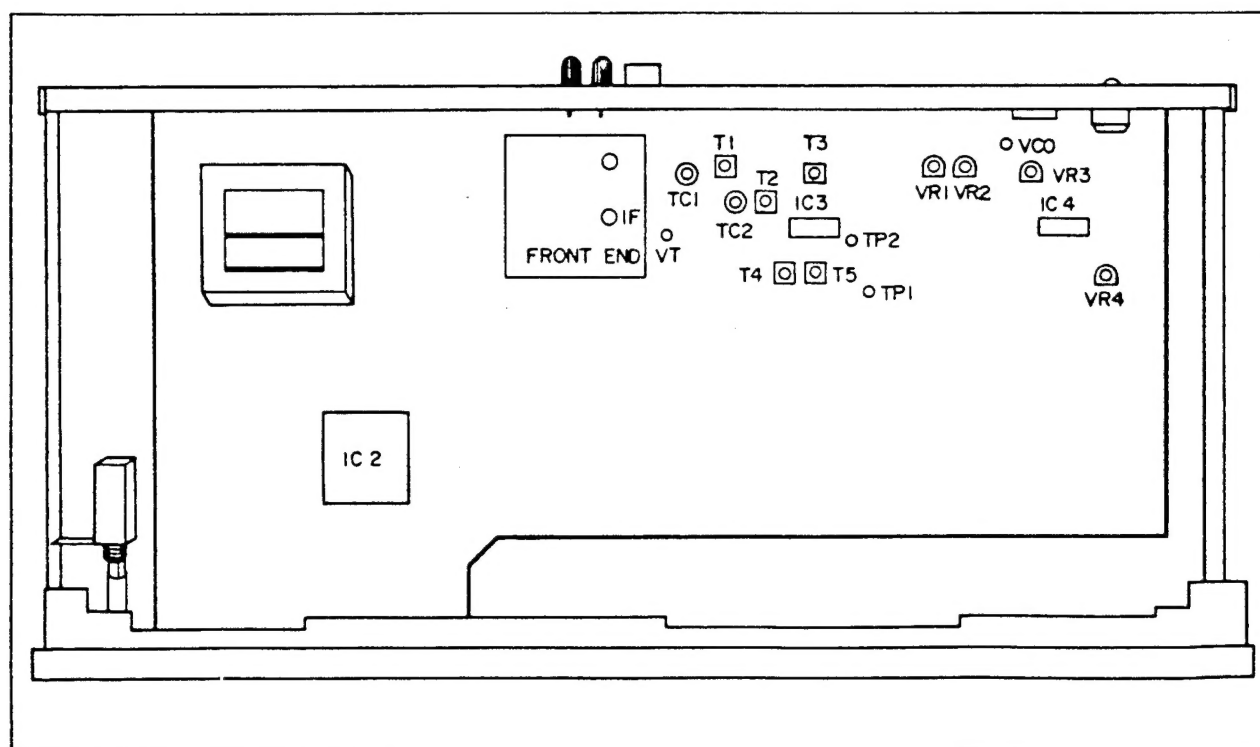
Step	FM SG 1 kHz, ± 46 kHz deviation		Tuner Frequency display	Adjustment point	Adjustment procedure
	Frequency	Level			
1	No signal		87.5 MHz		Confirm that 1.9V DC ± 0.5V between terminal VT and Ground.
2	No signal		108.0 MHz		Confirm that 8.0V DC ± 0.5V between terminal VT and Ground.
3	98.0 MHz	60 dB		T 4 T 5	Adjust until T-meter at between TP1 and TP2 could be positioned at center Adjust until Distortion at output L or R terminal is minimum.
4	98 MHz (not Modulation)	60 dB	98.0 MHz	VR 3	Adjust signal between terminal VCO and Ground to 76 kHz (± 50kHz)
5	98 MHz set to stereo	60 dB	98.0 MHz	I.F (within ± 90°)	Adjust until Distortion at output L or R terminal is minimum.
6	98 MHz	19 ± 1 dB	98.0 MHz	VR 2	Adjust until Tuning indicator light up.
7	98 MHz set to stereo		98.0 MHz	VR 4	Adjust until stereo separation at output L or R terminal is maximum.

*4) The tuned indicator should go off within 20 KHz to 40 KHz when moving away (in either direction) from a tuned frequency.

AM Tuner

- Connect the furnished AM Loop antenna between terminals AM ANTENNA and GND.
- Connect the AM signal generator (AM SG) to to the AM Antenna terminal.
- *3) Tune the AM SG to the UT-100

Step	AM SG 400Hz,30% modulation		Tuner Frequency Display	Adjustment Point	Adjustment Procedure
	Frequency	Level			
1	No signal		522 kHz	T2	1.2V DC between terminal VT and GND.
2	No signal		1611 kHz	TC2	8.0 V DC between terminal VT and GND.
3	Repeat steps 1 and 2 until both specification are correct				
4	Repeat steps 4 and 5 until maximum sensitivity is attained.				
5	603 kHz(*3)	60dB	603kHz	T1	Adjust until maximum
6	1395 kHz(*3)	60dB	1395kHz	TC 1	sensitivity in attained
7	999 kHz	52dB	999kHz	VR 1	Adjust until Tuning indicator light up.



— Adjustment points —